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IFW

Attorney's Docket No.: 17181-002005 / 24739-2101G

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bruce A. Lessey, et al.      Art Unit : 1644  
Serial No. : 10/762,441      Examiner : Unknown  
Filed : January 21, 2004      Conf. No. : 5177  
Conf. No. : 20985  
Title : DETERMINATION OF ENDOMETRIAL RECEPTIVITY TOWARD  
EMBRYO IMPLANTATION

**Mail Stop Amendment**  
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Dear Sir:

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Respectfully submitted,

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Attorney Docket No. 17181-002005  
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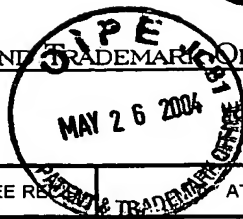
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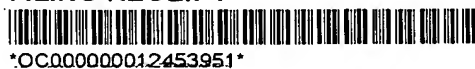
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10/762,441	01/21/2004	1644	385	24739-2101G	7	16	1

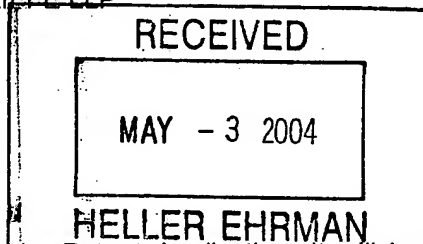
CONFIRMATION NO. 5177

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## FILING RECEIPT



\*OC000000012453951\*



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## Applicant(s)

Bruce Lessey, Hillsborough, NC;

**RECEIVED**

MAY 03 2004

FISH & RICHARDSON, P.C.  
SAN DIEGO

## Domestic Priority data as claimed by applicant

This application is a DIV of 10/463,130 06/16/2003  
 which is a CON of 09/149,183 09/08/1998 PAT 6,733,979  
 which is a CON of 08/756,211 11/25/1996 ABN  
 which is a DIV of 08/400,270 03/03/1995 PAT 5,578,306  
 which is a CON of 08/126,063 11/01/1993 ABN  
 which is a DIV of 07/897,706 06/12/1992 PAT 5,279,941

## Foreign Applications

If Required, Foreign Filing License Granted: 04/26/2004

Projected Publication Date: 08/05/2004

Non-Publication Request: No

Early Publication Request: No

\*\* SMALL ENTITY \*\*

**DOCKETED**

Title

Determination of endometrial receptivity toward embryo implantation

Preliminary Class

435



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US005279941A

United States Patent [19]

Lessey

[11] Patent Number: 5,279,941

[45] Date of Patent: Jan. 18, 1994

## [54] DETERMINATION OF ENDOMETRIAL RECEPTIVITY TOWARD EMBRYO IMPLANTATION

[75] Inventor: Bruce Lessey, Havertown, Pa.

[73] Assignee: Trustees of the University of Pennsylvania, Philadelphia, Pa.

[21] Appl. No.: 897,706

[22] Filed: Jun. 12, 1992

[51] Int. Cl.<sup>5</sup> ..... G01N 33/554; G01N 33/577

[52] U.S. Cl. .... 435/7.21; 435/960; 436/510; 436/519; 436/65

[58] Field of Search ..... 435/7.21, 810, 960; 436/510, 519, 548, 65, 814; 530/388.25, 389.3, 391.3

[56] References Cited

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(List continued on next page.)

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[57]

## ABSTRACT

Methods are provided for detecting receptivity of mammalian endometrium to embryo implantation comprising obtaining a sample of the endometrium, contacting the endometrium with a monoclonal antibody for  $\beta_3$  integrin and detecting  $\beta_3$  integrin in the endometrium. The invention also provides for methods of diagnosing infertility in a mammal and methods of detecting the window of embryo implantation in endometrium. Methods of in vitro fertilization, methods of preventing embryo implantation and a method of monitoring endometrial maturation are also within the scope of the present invention. The present invention is also directed to contraceptives. Diagnostic kits useful in the practice of the methods of the invention are also provided.

32 Claims, 6 Drawing Sheets



(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2003/0228636 A1**  
**Lessey** (43) **Pub. Date: Dec. 11, 2003**

(54) **DETERMINATION OF ENDOMETRIAL  
RECEPTIVITY TOWARD EMBRYO  
IMPLANTATION**

063, filed on Nov. 1, 1993, now abandoned, which is  
a division of application No. 07/897,706, filed on Jun.  
12, 1992, now Pat. No. 5,279,941.

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**Publication Classification**

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(51) **Int. Cl.<sup>7</sup>** ..... **G01N 33/53; G01N 33/567**  
(52) **U.S. Cl.** ..... **435/7.2**

(21) **Appl. No.: 10/463,130**

(22) **Filed: Jun. 16, 2003**

(57) **ABSTRACT**

**Related U.S. Application Data**

(60) Continuation of application No. 09/149,183, filed on  
Sep. 8, 1998, which is a continuation of application  
No. 08/756,211, filed on Nov. 25, 1996, now aban-  
doned, which is a division of application No. 08/400,  
270, filed on Mar. 3, 1995, now Pat. No. 5,578,306,  
which is a continuation of application No. 08/126,

Methods for detecting receptivity of mammalian  
endometrium to embryo implantation comprising obtaining  
a sample of the endometrium, contacting the endometrium  
with a monoclonal antibody for  $\beta_3$  and detecting  $\beta_3$  in the  
endometrium. The invention also provides for methods of  
diagnosing infertility in a mammal and methods of detecting  
the window of embryo implantation in endometrium. Meth-  
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implantation and a method of monitoring endometrial matu-  
ration are also within the scope of the present invention. The  
present invention is also directed to contraceptives. Diag-  
nostic kits useful in the practice of the methods of the  
invention are also provided.